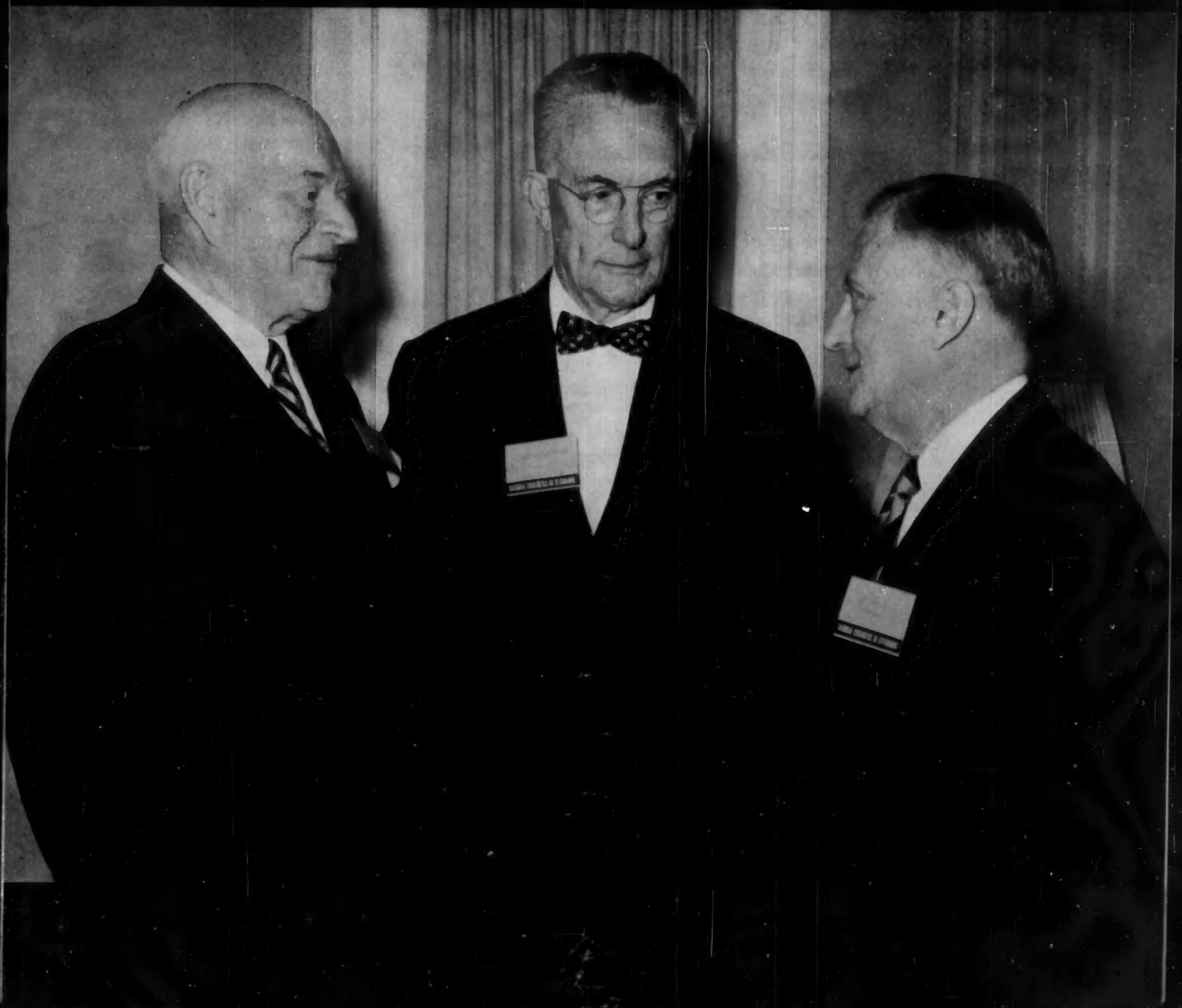
The Magazine of

STANDARDS



The Magazine of
STANDARDS
Formerly Standardization

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Opinions expressed by authors in THE MAGAZINE OF STANDARDS *are not necessarily those of the American Standards Association.*

Sidelights of the National Conference

What They Said—

In accepting the Standards Medal (page 356), James G. Morrow modestly commented, "As a Canadian, I should prefer to look upon it as a very great honor to my country rather than as a mark of distinction for me. It is indeed a tribute to all Canadian engineers who have worked together with their American colleagues in the development of more and better standards."

His strong belief in the importance of standards, not only national but international, was indicated in his statement, that "national isolation in standards can imperil our very existence."

This same thought in different terms was expressed by Dr H. S. Osborne in his acceptance of the Howard Coonley Medal. Dr Osborne commented that the delegates to international standards meetings, whether government representatives or representatives of industry or science, "make some progress in that human understanding and world friendship which are essential for the very salvation of our small and shrinking planet."

Former recipients of the Howard Coonley Medal were: Thomas D. Jolly; Ralph E. Flanders; William L. Batt; Herbert Hoover; and Howard Coonley. The Standards Medal was presented in past years to John Gaillard, Perry L. Houser, Frank O. Hoagland, and Paul G. Agnew.

Legal Implications—

As a footnote to the session on legal implications of standardization (page 358), you may be interested in reading Lowell Mason's article, "Bureaucracy Psychoanalyzed: The Case of Antitrust vs National Standards" published in the *Harvard Business Review,* November - December issue. For information on reprints, write the *Review* at Soldiers Field, Boston 63, Mass.

Speaking of international standards—

The Bureau of Ships' exhibit (page 369) calls attention to solu-

tion of a problem concerning boiler fuel oils. Seems it used to be that British boiler fuel oil when mixed with oil used by the USA frequently formed a sludge. Now, since standardization, both oils are compatible and British oil mixes satisfactorily with domestic oil—obviously a matter of considerable importance in joint naval operations.

From the Exhibits—

Spokesmen for the Bureau of Ships pointed to a new philosophy of maintenance that may be expected as a direct result of unit construction of modular electronic circuits. They foresee that radio, radar, and similar equipment will no longer have to be removed from service for long periods of time when something goes wrong. The equipment can be returned to service almost immediately by removing the complete unit that failed, and replacing it with another of the prefabricated modular units shown in the Bureau's exhibit. Then the trouble can be located at leisure and out-of-order parts replaced. This makes use of the electronic circuits developed by the National Bureau of Standards in cooperation with the Navy and known during development stages as Project Tinkertoy.

Decimal-inch scales were exhibited by Dietzgen and Lufkin. Both make the scales in accordance with American Standard Z75.1-1955. "We at Dietzgen are pleased that we were privileged to serve on the ASA committee and thereby participate in the design of these scales," says Dietzgen in its promotion material announcing its new scales.

The Front Cover

James G. Morrow (left) and Dr H. S. Osborne (right) chat with Arthur S. Johnson, who presented the Standards Medal and the Howard Coonley Medal at the Awards Dinner.

Pictures of the Conference were taken by National Bureau of Standards staff photographers.

Two films on standardization were introduced at the Awards Dinner by top Army and Navy officers. The new film "Standardization," released by the Bureau of Ships for the first public showing at the Dinner was introduced by Rear Admiral A. G. Mumma, USN (left), chief of the Bureau. Brig. General W. C. Baker, Jr. (right), Deputy Chief of Engineers for Military Operations, introduced the film "Keep 'Em Running," a case history on engine standardization produced by the Corps of Army Engineers.

Standards in the Popular Press—

From the Readers Digest, November 1955 "The New Look in Defense Spending":

"Much of the waste in Defense housekeeping has been the result of cataloging trouble. Until recently the armed services listed more than three million items they thought they might need, not including spare parts. (The Sears, Roebuck Catalog lists a little more than 100,000.) A standard size inner tube would have one stock number in the Army warehouse system, another in the Air Force, maybe a dozen numbers in the Navy's supply system.

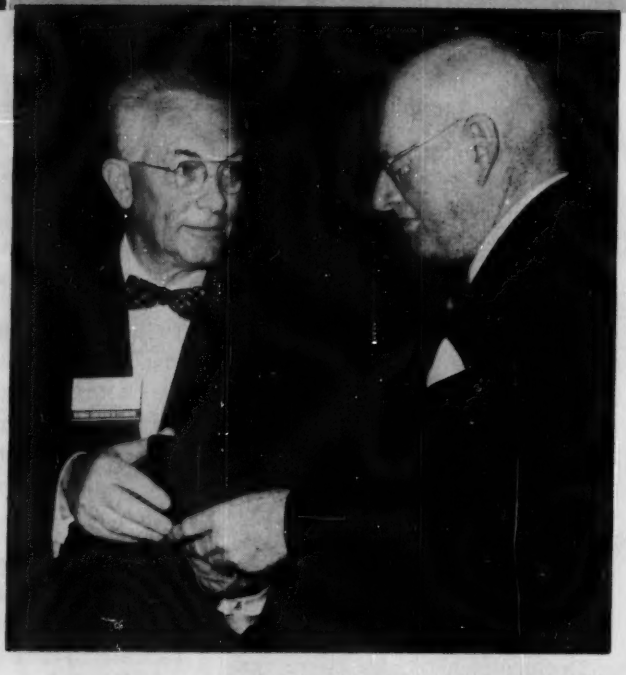
"Roger Gay, on leave as board chairman of Bristol Brass and a former president of the American Standards Association, was drawn in to tackle this problem as Director of Cataloging, Standardization and Inspection. His task is to weed out duplications, then boil down the three lists to a single unified catalog. This will bring rich savings in inventoy, warehouse space and paper work.

"The best hope lies in standardization. . . . For instance, we have in our supply system 151 makes of battery-charging generators for engines in the 18-ampere range, requiring 2260 spare parts. Roger Gay, with industry's aid, aims to replace them with one generator of a new design."

Mr Hepplewhite and Mr Chippendale met for the first time at the Sheraton-Park Hotel, Washington, during the Sixth National Conference on Standards—that is, Earl C. Hepplewhite, Lamp Division, General Electric Company, Cleveland, Ohio (left),, and Arthur Chippendale, Jr, Standards Group Supervisor, Convair-Pomona Company, Pomona, California.

The Sixth

Dr H. S. Osborne (left) receives Howard Coonley Medal from A. S. Johnson at Award Dinner. Below, James G. Morrow (right) accepts Standards Medal from Mr Johnson.



Osborne and Morrow Receive Top Standards Awards

"Strong in leadership and rich in inspiration . . ." These are the words of the citation with which Dr H. S. Osborne was awarded the Howard Coonley Medal. The award was presented at a dinner during the Sixth National Conference on Standards at the Sheraton-Park Hotel, Washington, D. C., October 25. The gold medal is presented annually by the American Standards Association to an executive chosen in recognition of great service in advancing the national economy through voluntary standards.

In presenting the medal this year to Dr Osborne, Arthur S. Johnson, chairman of ASA's Standards Council, called attention to his service as president of the International Electrotechnical Commission—"the most distinguished post that the world of electrical standardization has to offer." For his work in that position, from 1952-1955, the American Society of Mechanical Engineers has just conferred on Dr Osborne its Seventy-fifth Anniversary Medal.

Dr Osborne is one of the world's most widely known and respected engineers in the field of communications. Last summer, the King of Sweden honored him with the ancient Swedish Order of Vasa, in recognition of his services to the Swedish communications system. Dr Osborne was chief engineer of the American Telephone and Telegraph Company at the time of his retirement three years ago. He had been with AT&T since 1910.

He has served the American Standards Association as vice-president and member of the Board of Directors, member of the Executive Committee, and chairman of the Standards Council.

"An elder statesman of the standards movement in three countries," the citation calls James G. Morrow, who was awarded the Standards Medal for 1955. This gold medal is presented each year to an individual who is outstanding as a leader in the actual development and application of standards.

Mr Morrow is in charge of standardization in chemical methods, metallurgical processes, and products for The Steel Company of Canada, Ltd. For many years he was chairman of the Canadian Standards Association. He is vice-president of the Canadian Industrial Preparedness Association and past president of the American Society for Testing Materials.

For his work on steel during World War II, Mr Morrow was made a Member of the Order of the British Empire in His Majesty's Birthday Honors List, June 1943.

Mr Morrow has helped bring about important agreements on technical matters among England, Canada, and the United States, and signed for Canada the American-British-Canadian Declaration of Accord on Screw Threads in 1948. He is uniquely suited for such a service, Mr Johnson declared. "As a dedicated Canadian he can understand both American English and English English."

National Conference on Standards

Government-Industry Cooperation in Standardization...

GROWING interest in standards was evident during the Sixth National Conference on Standards held in Washington, D. C., October 22-24. More than 800 attended. The Conference, devoted to "Government-Industry Cooperation in Standardization," was sponsored jointly by the National Bureau of Standards and the American Standards Association.

Among subjects discussed were the legal implications of standardization; government-industry standardization at the level of the Office of Secretary of Defense and at the level of the Army, Navy, and Air Force; the relationship of industry standards and specifications to those of government; and government-industry cooperation in international standardization.

Other features were the thirty-seventh annual meeting of the American Standards Association and a tour of the National Bureau of Standards. At the Award dinner, at which the Howard Coonley Medal and the Standards Medal were presented, the Bureau of Ships' film "Standardization" was given its first public showing.

In his keynote address, Thomas P. Pike, Assistant Secretary of Defense, Supply and Logistics, pleaded for development of a comprehensive set of national standards "not to solve problems but to prevent problems from arising." Increased standardization would save taxpayers "mountains of money," he said. The United States is rapidly becoming a "have-not nation" in a number of important basic commodities, he said, and warned that we cannot go on wasting these materials for want of national standards.

At the opening session—Thomas P. Pike, keynote speaker; Dr A. V. Astin, Director, National Bureau of Standards; Arthur S. Johnson, chairman, ASA Standards Council; Vice Admiral G. F. Hussey, Jr, USN (Ret), Managing Director, ASA.

Citing the "long history of cooperative activity" between the National Bureau of Standards and ASA, Dr A. V. Astin, Director of the Bureau, in his welcoming address, pointed to the fact that members of the Bureau's scientific staff hold about 250 memberships in ASA committees and subcommittees. "Our relationships have always been mutually beneficial," he said. The Bureau is a national physical laboratory giving scientific service to Government, science, and industry. It seeks the advice of industrial and scientific groups to make its services more valuable, Dr Astin explained.

In ASA's Thirty-seventh Annual Meeting that opened the Conference, Arthur S. Johnson, chairman of ASA's Standards Council, called attention to new work started and new developments in a wide variety of fields. Welcoming the recent directive of the Department of Defense that permits representatives to vote in committees of private organizations, Mr Johnson commented that it is of great importance for government to work with industry in building adequate procedures to coordinate the viewpoints of all groups.

Vice Admiral G. F. Hussey, Jr, Managing Director of the Association, reported on ASA activities. He called attention to approval of the 1500th American Standard (page 378).

...The Legal Implications

Lowell Mason (left), Federal Trade Commissioner, was moderator of the panel that discussed the Legal Implications of Standardization. With him here are Maxwell H. Elliott (center), General Services Administration, and Ephraim Jacobs, Antitrust Division, Department of Justice.

EMPHASIZING the need for better communications to improve understanding among groups with divergent viewpoints, Lowell Mason, Federal Trade Commissioner, referred to the Standardization Conference as a "symptom of the changing trend in government - industry relations in the field of national standards." Mr Mason opened the session on the legal implications of standardization. The fact that different government groups have different views on the role of standards may be due to lack of communication among them, he commented.

Before 1934, the Federal Trade Commission and the Department of Justice "looked calmly, dispassionately, and even favorably" on national standards, Mr Mason explained. Shortly after 1934, however, came a change in the government's attitude. The Department of Commerce, the military, the Federal Supply Service, and other purchasing agencies of government continued to ask for more standardization. The Federal Trade Commission and the Department of Justice, on the other hand, developed a concept called "conscious parallelism." Under this concept, a price-fixing conspiracy was inferred whenever private citizens cooperated with each other, or even when they cooperated with federal agencies, to establish national standards. As an example of the effect of this attitude, Mr Mason cited the case of a medical project for conducting research on objects implanted by surgery in the human body—braces, pins, plates, and so forth. On completion of the research, the doctors intended to sit down with the manufacturers and others who were interested and to draft a set of standards.

"The project was dropped and has never been taken up again," Mr Mason declared. "It was dropped on legal advice, simply because of fear of a possible antitrust action following such a medical and industry-wide conference."

Mr Mason introduced the three speakers on the panel. The speakers were all lawyers, each representing different viewpoints. They each presented the legal picture on standards as it looks to them today.

Maxwell H. Elliott, general counsel of the General Services Administration, gave the view of this federal agency to which standards are vitally important.

Ralstone R. Irvine, member of the New York law firm of Donovan, Leisure, Newton, and Irvine, spoke for business and industry. His experience has been particularly with the trade associations and technical societies which play a major role in standards work.

Standardization, properly pursued, promotes rather than restrains competition, and most legal implications arise not from standardization but from activities which are separate and different from standardization, he declared.

No federal court ever has held standardization as such to be illegal under the antitrust laws, he said.

# of Standardization

However, he pointed out, standardization may be used to impose restraints and to promote monopolies. It is this use of standardization that is illegal.

Mr Irvine believes that an agreement to use standardization as a means to carry out a price-fixing conspiracy would not be standardization. Similarly, an agreement among producers or purchasers to manufacture or purchase only in accordance with a standard might curtail production or boycott suppliers. Such an agreement is not standardization, Mr Irvine declared.

If a standard benefits producers and consumers alike, it will readily find acceptance apart from any agreement, he pointed out. "The mere fact of general acceptance under such circumstances is not evidence of a conspiracy or combination, and the adoption of the standard is clearly legal," he said. "If, on the other hand, a particular standard appears to be in the interest only of the group promulgating the standard and is contrary to the interests of other groups, then its exclusive or preferred use might be difficult to explain except as the result of a joint effort to impose the will of one group upon the other."

He was of the opinion that the courts would view with suspicion any adherence to standards which attempts to define terms of sale, the nature of guarantees, and other matters which normally fall in the area of bargaining between buyer and seller.

Mr Irvine analyzed the competitive effects of standardization, including the possibility that it might tend to produce similarity or identity of price. He is of the opinion that "similarity or even identity of price resulting from consumer acceptance of the fact that the goods offered are identical in operation and performance results normally from competition and does not evidence a conspiracy."

He also analyzed the function of standards, including quality standards, safety standards, standards involving patents, standards of interchangeability, standards to reduce variety, and the procedures for developing standards.

Ephraim Jacobs, chief of the Legislation and Clearance Section, Antitrust Division, Department of Justice, spoke from the viewpoint of the department whose duty it is to see that companies and associations of companies do not use standards in restraint of trade.

He quoted a statement by Assistant Attorney General Thurman Arnold some 15 years ago in connection with a Department of Justice case against the Southern Pine Association. Mr Arnold said, "Standardization programs in and of themselves are not condemned by the Department. It is the wrongful use to which such programs have been put that has been questioned."

This statement reflects present-day thinking on the subject, said Mr Jacobs.

He analyzed a number of cases involving standardization and pointed out the elements that had marked them as illegal in the opinion of the Justice Department.

These involve elimination of competition, price fixing, and production control. Certain characteristics of standardization lend themselves to misuse in these cases, he said. These are particularly the group or collective action associated with standardization, uniformity of product that may result, and agreement to refrain from producing nonstandard products.

He concluded that "where you have a standard product, every effort should be made to avoid all other indicia of agreement." He pointed out that, in addition to price fixing, agreements to limit production are not permitted under the antitrust laws. "It is very important that each participant retain his individual freedom to depart from the standard as he individually desires," he declared. "This, to a small extent, negatives the idea that there is an intention to limit the production of other products." Also, there should be no attempt to exclude competitors from a market.

In most cases, Mr Jacobs declared, the Federal Trade Commission and the Justice Department have permitted an otherwise legal standardization program to continue so long as it is not used with an illegal purpose or effect. In one case, in which "the consent decree does not completely enjoin the standardization program, "Mr Jacobs explained, it does enjoin the defendant association from "adopting, promulgating, or approving any standard for cast iron or cast steel rolls which may have the purpose or effect of preventing the manufacture or sale of rolls not conforming to such standard."

Ralstone R. Irvine
spoke for business and industry

The Justice Department has not been hostile toward or unfair to legal standardization programs, Mr Jacobs said. "We realize that standardization has been and can be an important factor in industrial progress..."

Reverberation chamber where sound absorption of building construction and materials is measured. Hard absorbing walls and rotating vanes (right foreground) diffuse sound. Sample carpets, floor and wall coverings are being tested. Dr. R. K. Cook, Chief, Sound Section, is lecturer.

The Bureau staff's Committee in Charge of Arrangements prepared a tea at The Manse for the Bureau's visitors. The committee, left to right, are Lucy M. Cavallo, Division on Atomic and Radiation Physics; Mary K. Mutchler, and Jo Blandford, both of the Bureau's Organic and Fibrous Materials Division.

Directors' Greeting — The Bureau's Astin (left); ASA's Hussey (right).

...*at the* National Bureau of Standards

Conferees visited the National Bureau of Standards by busloads, some 250 people in all. Each group was conducted through eight of the 12 laboratories that had been opened for inspection, selected for their special interest to those concerned with standards.

As Dr A. V. Astin explained, Bureau work on standard practices and safety codes began in the early years of this century. By 1920 the Bureau had agreed to sponsor seven codes under the American Engineering Standards Committee (now the American Standards Association). Today, under ASA procedure, the Bureau sponsors codes for electrical safety; protection against lightning; protection of heads, eyes, and respiratory organs; logging and sawmills; elevators, dumbwaiters and escalators; specifications and methods of test for safety glass; and electrical fences, in addition to a number of others. In all, 248 ASA committee assignments are distributed among the Bureau staff.

The Bureau has custody of the national standards of physical measurement and develops methods and instrumentation for calibrating the standards used in scientific and industrial laboratories by comparison with the national standards. In addition, it determines fundamental physical constants and the basic properties of materials, and develops improved methods for testing materials and equipment. It also makes tests of materials and supplies for the Government to determine compliance with specifications.

The Bureau's program is carried out in 16 technical divisions: Electricity and electronics; optics and metrology; heat and power; atomic and radiation physics; chemistry; mechanics; organic and fibrous materials; metallurgy; mineral products; building technology; applied mathematics; data processing systems; cryogenic engineering; radio propagation physics; radio propagation engineering; and radio standards.

High-temperature laboratory works for basic data needed for efficient, safe use of high-temperature engines — rockets, turbines, jets. Dr. A. M. Bass, Assistant Chief, Temperature Measurements Section, is lecturer.

Below, deadweight testing machines, large proving rings, 3-million-pound compression dynamometers, and a 10-million-pound compression testing machine are laboratory equipment for testing strength of materials. Speaking—Dr W. Ramberg, Chief, Mechanics Division.

Roger E. Gay (above, right) headed the Defense Department team. With Mr Gay is Colonel Joseph R. DeLuca, USAF; at left, John J. Riordan, speaking; below, right, Captain C. R. Watts, USN. John R. Townsend (center) represented industry. Marvin C. Olsen (left) was chairman.

...*at the* Office of Secretary of Defense Level

The Department of Defense and the Company Member Conference of the American Standards Association cooperated in presenting this session as well as the following one on Government-Industry Standardization at the Army, Navy, and Air Force level. Marvin C. Olsen, National Cash Register Company, Dayton, Ohio, and chairman of the CMC, presided. Roger E. Gay, Director, Cataloging, Standardization, and Inspection, Department of Defense, was Moderator.

The job of identifying every item used or stocked by the Defense Department with a single identifying term is now within 11 months of completion, Colonel Joseph R. DeLuca, USAF, said. Colonel DeLuca is Staff Director for Cataloging, Office of the Assistant Secretary of Defense (Supply and Logistics). He described the Federal Cataloging program. Frequently, critical shortages of supplies during World War II were not true shortages, he pointed out, but merely shortages due to lack of proper identification of materials already in stock. The purpose of the Federal Cataloging Program is to identify each item so that it bears only one identification in military supply, regardless of who makes it and regardless of who uses it, he explained. The cataloging system establishes four elements for each item: name, identification, classification, and stock number—to provide a single system for all federal supplies. Eighteen thousand uniform names have been established to date. The Federal stock numbering system is an 11-digit semi-significant number made up entirely of numerals.

This group was part of a team of 24 attending a six-weeks practical seminar in supply management sponsored jointly by the International Cooperation Administration and governments of the participating countries. The group visited industry and government organizations in the USA to study all phases of supply management, from determination of material requirements to final disposition of the materials.

VISITORS FROM OTHER COUNTRIES

Purchasing officers from industry and government representing 10 countries were present at the Conference. Left to right—Mario Salcedo, Bolivia; June Shik Kim, Korea; Victor Patino, Bolivia; Rodolphe Ollivier, France; Jose Legarda, The Philippines; Andre Terra, France; Yung Chul Kim, Korea; Rear Admiral Roland Ziegel, French Navy; Kou Hung-Fei, Republic of China, Taiwan; Pierre Senechal, France; Paul J. Hazur, ICA; Zia eldin Hosseini-Tabrizi, Iran.

The Federal Supply Catalog is a card-type catalog. It is maintained, published, and distributed on a by-item basis.

Eighty-seven of the 125 production line areas, representing 379 classes out of 536 existing classes, are now complete, he said. This represents 1,000,000 items in these completed areas.

Coordination of industry and government standards is taking place too slowly, declared Captain C. R. Watts, USN. He called on industry to recommend means of achieving effective liaison between industry and the military departments in carrying out the Defense Standardization Program and to develop procedures for obtaining rapid coordination of standardization documents. Captain Watts is Staff Director for Standardization, Office of Assistant Secretary of Defense (Supply and Logistics). The Defense Department wants to use nationally recognized standards and specifications prepared by industry to the maximum possible degree, he said. Where it is possible to achieve a single standard for an item or for engineering applications, we shall be far better prepared should the day of mobilization arrive, he explained.

Only the fringes of standardization have been touched so far in the some 500-odd federal supply classes set up under the Department of Defense standardization program, Captain Watts said. The Department of Defense has reoriented its standardization work and has established a new concept of the manner in which this work should be carried out. Under the new program, an analysis will be made of each federal supply class to determine the degree of standardization possible and the benefits to be derived, and to develop a plan with time schedule for completion of the standards needed.

Responsibility for the various Federal Supply Classes has already been assigned to the military departments and each in turn is assigning the responsibility for planning and monitoring each program to one of its technical services, bureaus, or commands. Captain Watts expects to advise industry through technical society and trade journals concerning the details of these assignments. He believes this will be a help in knowing where to go in the government for information on standards.

Standardization is needed in the government's quality control program to assure that government inspection is operated as economically as possible, John J. Riordan, Acting Staff Director for Inspection and Quality Control of the Department of Defense, declared. It is annoying to government contractors to find that different government inspection organizations operate in accordance with different policies, different procedures, and different forms, he pointed out. In military procurement standardization is helping to improve techniques used in defining acceptable product quality, as well as in defining a satisfactory quality control system. Mr Riordan believes that as time goes by the government will contract for material not only on the basis of price but also on the basis of quality as stated in specific engineering and quantitative terms. He believes that acceptance requirements must be stated in terms of (1) the specific quality characteristics to be tested or inspected; (2) the instrumentation by which these inspections are to be made; and (3) the risks that are to be taken in deciding on acceptability when more than one unit of a product is involved.

Mr Riordan suggested that government and industry develop further the technique and content of the Classifications of Defects now sometimes used in identification of quality characteristics.

Military Standard 105A, developed by the Department of Defense,

provides a means of applying mathematical statistics to help choose the appropriate sampling plan for inspection by attributes, he pointed out, and the Department is now working on a similar standard for inspection by variables.

Progress is also being made, he said, in standardizing procedures by which contractors' quality control systems are evaluated. He mentioned the Signal Corps' Reduced Inspection Quality Assurance Program, the Navy Department's guide for use by Navy inspectors in evaluating contractors' inspection systems, and the manual of the Air Force (Air Materiel Command Manual 74-21).

Standard gages and measurement requirements are needed, Mr Riordan commented, since consumers and vendors are sometimes at odds due to differences in gaging and instrumentation.

Standards are important to Sandia Corporation because it must bring weapon designs to the state where they can be built by any manufacturer who is commercially competent, said John R. Townsend, director of Materials and Engineering, Sandia Corporation. Mr Townsend spoke from industry's point of view. Sandia deals with more than 3500 contractors and subcontractors, and design and engineering information must be communicated so as to be understood by all concerned, he explained.

Sandia's procedures include use of standard drafting practices; a well-integrated specification system covering materials, processes, standard parts, and environmental tests; a part numbering system that can be tied in to the national catalog system; a "change order" system to follow changes in design and product definition; and a system of review to provide for deviations from engineering requirements. Also, there is a system of review to determine conformance of the product and a general release system when engineering has reached a sufficient stage of completion to permit manufacture. Broad use is made of physical and electrical standards and of a well-integrated and understood system of nomenclature. Material diagnostic laboratories use standard specifications promulgated by the American Standards Association and the American Society for Testing Materials, and environmental test standards follow the requirements of military and national standardizing bodies.

...the Company Member Conference

J. Robert Walgren, Aluminum Company of America, Pittsburgh, was elected chairman of the Company Member Conference of the American Standards Association at the CMC annual meeting October 25. W. C. Cadwell, Caterpillar Tractor Company, Peoria, Illinois, is CMC's new vice-chairman. Mr Walgren succeeds Marvin C. Olsen, National Cash Register Company, Dayton, Ohio.

Four new members of the Administrative Committee were also elected. They are Alfred Gastler, Consolidated Edison Company, New York; Philip Kron, Eastman Kodak Company, Rochester, N. Y.; Roy Trowbridge, General Motors, Detroit; and J. R. Welshman, Grinnell Corporation, Providence, R. I.

J. Robert Walgren (center), newly elected chairman of the Company/Member Conference, with Marvin C. Olsen (right) retiring chairman, and W. C. Cadwell (left), newly elected CMC vice-chairman.

Three new members of CMC's Administrative Committee were at the Conference—Alfred Gastler; J. R. Welshman; and Philip Kron.

CMC Invites Suggestions

A meeting of the CMC Administrative Committee, tentatively scheduled for January 24, will consider the program for the Spring Meeting of the Company Member Conference.

Suggestions for speakers or for subjects to be discussed will be welcomed. All CMC members are invited to send their comments or suggestions to Mr J. Robert Walgren, Aluminum Company of America, 801 Gulf Building, Pittsburgh 19, Pa.

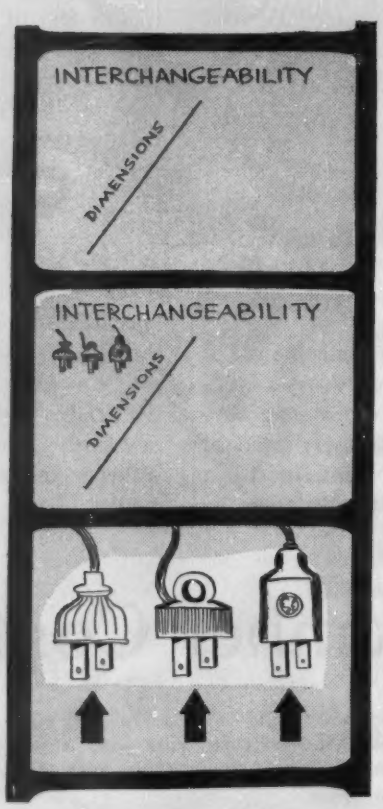
. . . the Bureau of Ships' Film

STANDARDIZATION

excerpts from the film

Narrator—

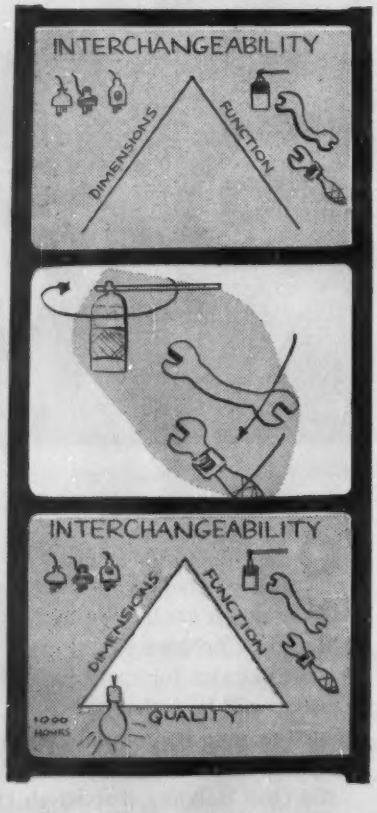
One aspect of Interchangeability concerns
DIMENSIONS



These connector plugs, although varying in appearance. . . .

. . . all have something in common—standard dimensions at their important points—the prongs--the parts that fit.

Another aspect concerns . . .
FUNCTION
Wrenches, for instance, may be of many types and shapes



If they provide adequate twisting torque, they are functionally Interchangeable.
A third aspect of Interchangeability concerns
QUALITY

Standard electric lamps are made to burn, under normal conditions, for an average life of 1000 hours. That amount of Quality is built into them.

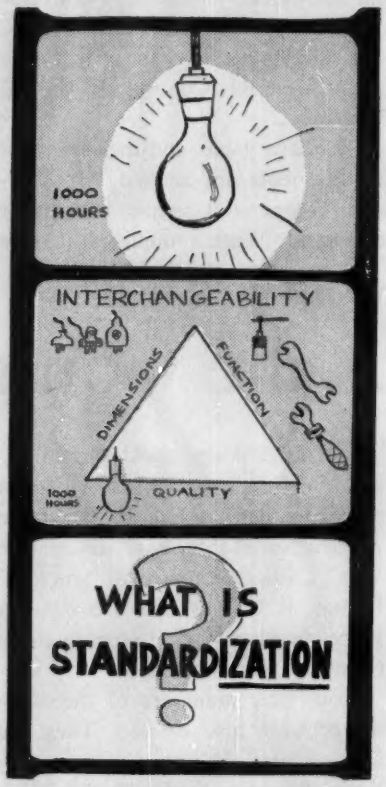
A lamp lasting noticeably less than 1000 hours would not be considered Interchangeable, quality-wise.

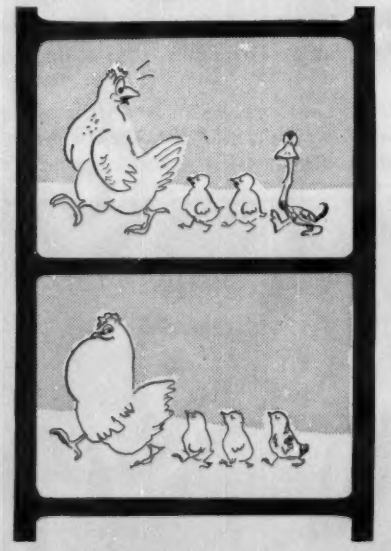
DIMENSIONS . . .
FUNCTION . . .
QUALITY . . . To fill a need, any one or all of these may vary . . . such as higher or lower Quality, different Dimensions, fewer or more Functions. To have complete Interchangeability each of these must be specified.

What is STANDARDIZATION? It is the establishment of Standards. But it is more than that.

Standardization is the movement . . .

. . . toward a desirable degree of uniformity, but not necessarily exact duplication.





The first motion picture dealing with the basic principles of standardization, just released by the Department of the Navy, was given its first public showing at the Awards Dinner of the National Conference on Standards. Production of the film, entitled "Standardization—A Dynamic Key to Economy." was sponsored by the Bureau of Ships. Representatives of the Standardization Planning Branch served as technical advisers throughout production.

The Honorable Raymond H. Fogler, Assistant Secretary of the Navy (Material), appears in the film introducing the subject of Standardization. Mr Fogler attended the Awards Dinner. Rear Admiral Mumma, Chief of the Bureau of Ships, made the introductory remarks before the showing of the film at the dinner.

The purpose of the Navy, in producing the film, is to further an understanding of the basic principles of standardization. This can make the logistical support of the defense effort more effective, according to the Bureau of Ships. It also provides a type of education which should assist in implementation of Public Law 436.

The principles set forth in the picture are basic and are used either in whole or in part in all successful standardization work. The ideas contained in the film are generally obvious to those experienced in standardization effort, but neglect of their significance can be pin-pointed, in many instances, as the reason for controversy and lack of common agreement.

During the preparation of the script, it was not always easy to represent basic thinking in picture form and to select the best sequence to show relationship of the ideas, according to the Bureau. The script and storyboard were reworked many times. Illustrations shown here are taken from the script.

Arrangements for previewing the film may be made by writing to Code 258E of the Bureau of Ships, Navy Department, Washington 25, D. C. Any such requests should state the scheduled date for showing and should refer to number MN8084.

If it is desired to purchase the film after viewing, this can be done at nominal cost through the United World Films Incorporated, 1445 Park Avenue, New York 29, New York. Any showing of this film should be on a nonprofit basis.

Inherent in our system itself is this give-and-take method of making decisions, arriving at the best means to Standardization. Because the movement toward Standardization requires the effort of everyone, it is vitally necessary that we obtain . . .

. . . Common Agreement.

First, be sure that what you do is beneficial. Some advantages should result You may discover that what you are doing is not Real or Realistic Standardization. Think it through before you start!

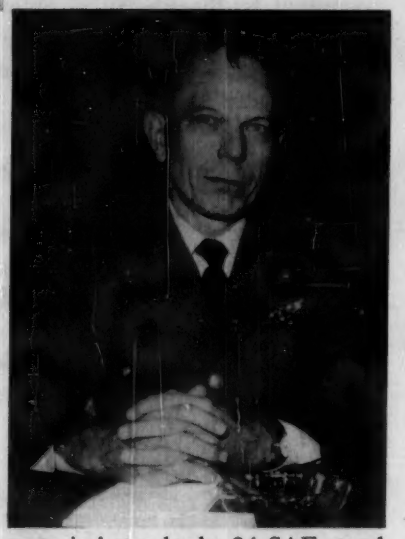
Standardization requires Common Agreement. It cannot be dictated by any one group. All must agree, to make it successful.

It is not necessary to become handcuffed to a Standard.

Change it when needed, but don't change it needlessly. Revise Standards where it is advantageous to do so.

...at the Army, Navy, and Air Force Level

Nathan Brodsky, Moderator, opens session on Army, Navy, and Air Force standards (right). Panel members, left to right, Brigadier General Marvin C. Demler, USAF; C. E. Mines; Mr Brodsky; Major General H. R. Westphalinger, USA; Captain G. T. Mundorff, USN. C. E. Mines, left above, spoke for industry.. Below, General Demler.



NATHAN BRODSKY, Deputy Director of Cataloging, Standardization, and Inspection, Department of Defense, was Moderator of this session, which was co-sponsored by the Company Member Conference of ASA and the Department of Defense.

The direct relation of standardization to military effectiveness was proven for the first time in American history at the Battle of New Orleans, during the War of 1812, said Brigadier General H. R. Westphalinger. General Westphalinger is Chief of the Procurement Division; Office, Deputy Chief of Staff for Logistics, Department of the Army. Credit for the victory at the Battle of New Orleans belonged not only to Andrew Jackson and Jean Lafitte, the loyal pirate, he said, but also to the fact that the British Army had more stands of arms returned to England for repair and replacement of nonstandard parts than it had available for the troops in North America.

Each of the seven technical services of the Army is now carrying out the Department of Defense standardization program, he said. Standard components for tank automotive vehicles is one example. The Ordnance Corps in its automotive standardization program since World War II has reduced the number of vehicle engines for all types of tank-automotive equipment from 48 to 13; has reduced vehicle transmissions from 48 to 13; and electrical components from 1,418 to 114.

Signal Corps standardization of communication equipment has resulted in preparation of a manual of technical standards that is now used as a guide by equipment designers.

General Westphalinger also called attention to standardization of electronic oscillator crystals and to standards in the textile, clothing, and apparel field as outstanding examples.

He emphasized the importance of adopting and integrating industry standards in Government standards and specifications wherever possible in order to make production easier.

During the past year a survey within the Navy showed the use of many industry standards for common materials, declared Captain G. T. Mundorff, USN, Acting Vice-Chief of Naval Material. One bureau alone reported use of 172 American Standards; 71 ASTM standards; 27 Underwriters' Laboratories' standards; 24 SAE standards; 7 standards of the American Iron and Steel Institute; and 6 of the Association of American Railroads; among others.

Captain Mundorff pointed to the size of the Defense Department's operations as one of the complicating problems. In a recent year Defense expenditures equalled the total yearly sales of the 12 largest corporations in America, he pointed out. Because even a Naval shipyard, the size of a large manufacturing plant, has little latitude for instituting changes in the interest of standardization, the Defense standardization program concerns itself with the smallest improvements, he explained. The many small improvements can bring total savings in the millions; but conversely a small mistake can pyramid into a costly blunder.

As examples of the Navy's experience with standards he mentioned tool standardization at the Naval shipyards and the San Diego Naval Repair Facility; an Army-Navy-Air Force agreement on a

military standard for forging die shanks, notches, and dowels that will permit complete interchangeability of forging dies produced for use by the military services; simplification of requirements for lumber and plywood; standardization in Diesel generator sets of 10-, 20-, and 30-kilowatt sizes; a standardized, reusable shipping container for sonar transducers; and standardization of components of electronics systems.

There is scarcely a contract for aeronautical equipment which would not be vastly more costly and difficult to fill if the Army-Navy-Aeronautical specifications and standards were not in existence, commented Brigadier General Marvin C. Demler, USAF. General Demler is Assistant Deputy Commander for Research and Development, Air Research and Development Command.

The Aeronautical Board took over the work on aeronautical standardization in 1937 and set up a full-time Working Committee charged with responsibility for standardization of Army and Navy requirements for aeronautical material, he explained.

By deciding immediately that Army-Navy-Aeronautical (ANA) specifications and standards would contain no differences between Army and Navy requirements, it ruled out any agreements to disagree. Preparation and coordination of ANA standards was assigned to full-time ANA personnel with no other duties. Although the Aeronautical Board was dissolved in 1948, the Working Committee has continued as the Aeronautical Standards Group. The basic function remains the same. The identical Army-Navy requirements established under this system made it possible during the war for a Navy inspector to inspect and accept engines produced at one plant for both services, while an Army officer did the same at another.

There is inadequate protection against substitution in airplanes of unproven parts for those so carefully selected and tested by the product designer, said C. E. Mines. Mr Mines is chief of Engineering Services, Allison Division, General Motors Corporation. Distinctive part numbering and distinctive marking of aeronautical standard items are musts, he said.

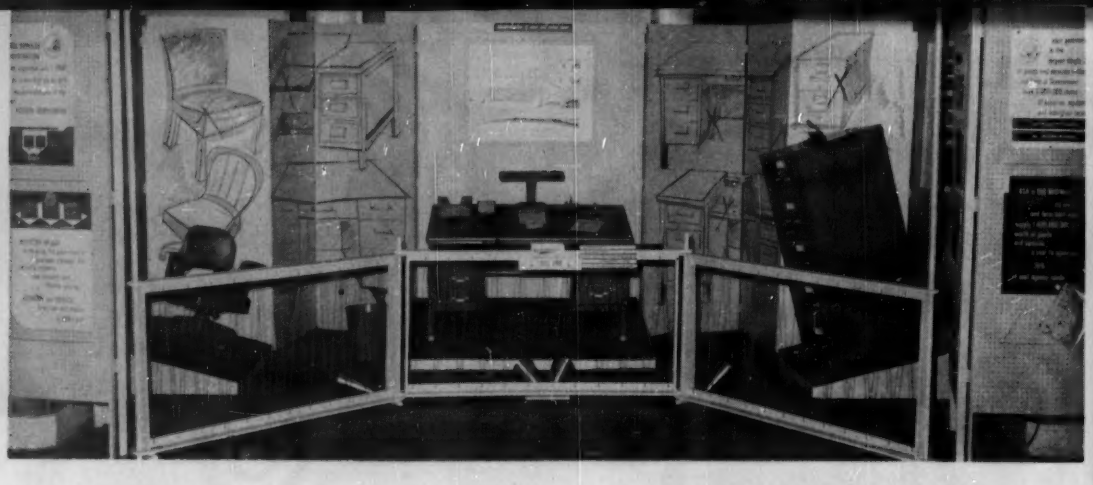
He commented that the achievements in government-industry cooperative standardization in the aeronautical field represent a good example of effective standardization. Four principles are being followed in this work, he said: (1) Recognition of the distinct responsibilities of government and industry members of the team. (2) A manufacturer responsible for having his product meet performance and operational requirements must be free to choose which standards he will use in his product. (3) The quality designed into the standard must be adequate for the product on which it is to be used. (4) Standards must not be stagnant, but must keep pace with new developments in aeronautical science.

Industry's cooperation with government on aeronautical standards is handled through the National Aircraft Standards Committee and the Aeronautics Committee of the Society of Automotive Engineers, Mr Mines explained.

Twenty-nine standards engineers of airplane, helicopter, and guided missile manufacturers are members of NASC. More than 60 new standards and revisions were released last year in the NAS series, and approximately 100 military specifications and standards, covering materials, processes, electrical and hardware items, fuel and hydraulic system devices were studied and commented upon at the request of the military services. About 20 active projects were being handled at the end of the year for the Council for Military Aircraft Standards.

Five divisions made up of 99 members work under the SAE Aeronautics Committee. Under these divisions are 51 committees and subcommittees with 649 members, plus seven temporary panels with 98 members. Of these 70 are liaison representatives from government. Last year 38 new and 71 revised Aeronautical Material Specifications were issued. Active specifications total 676 and a total of nearly 10 million copies have been sold. In addition, the several SAE committees have submitted detailed recommendations on a total of 165 government specifications and drawings, Mr Mines reported.

He urged that definition in a standard of a proprietary device that has been proven trustworthy be recognized as legal, and that standards be made specific since a "broad usage standard may result in inadequate producibility."



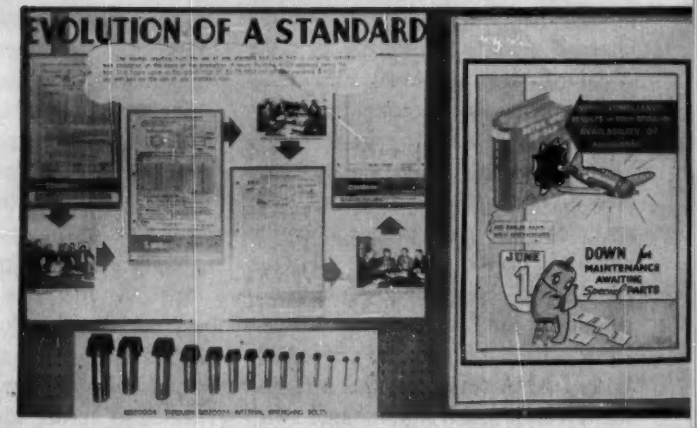
The General Services Administration's exhibit displayed standard office equipment—GSA's record, before standardization, 18 metal chairs, 4 colors; 15 desks, 6 colors; 15 cabinets, 6 colors. After standardization, 6 metal chairs, 2 colors, plus greater comfort, safety, durability; 6 desks, 2 colors, more serviceability; 2 cabinets, 2 colors.

. . . Shown in Exhibits of Work on Standards

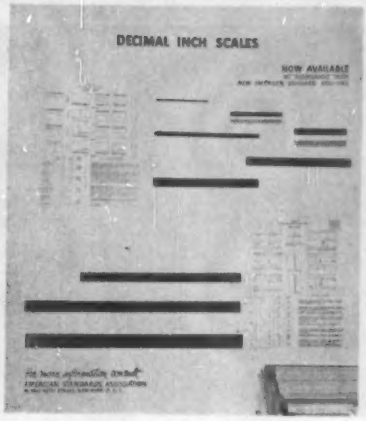
Boxes of American Upland Cotton showed standards for length of staple as well as different grades—spotted, white, tinged—in the exhibit of the US Department of Agriculture's Agricultural Marketing Service.

Some old timers in standards chat at NBS exhibit—Charles Rufus Harte; Arthur S. Johnson; John A. Dickenson, NBS; and Walter C. Wagner.

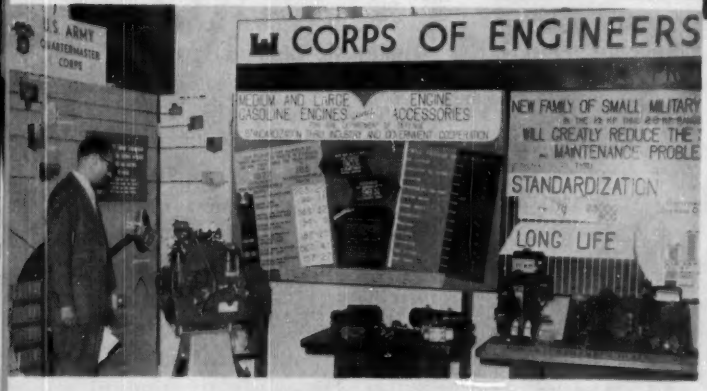
"A pioneer in standardization" said the Commodity Standards Division's identifying placard (below). Products made in accordance with Commercial Standards and Simplified Practice Recommendations displayed in the exhibits included plastic dishes, asphalt tile, clinical thermometers, wood shingles, surgical dressings, hardwood, veneered doors, shingles, cans for fruits and vegetables, boys' standard size clothing.



Industry-government cooperation, shown in Air Force exhibit, developed standard bolt that saved $400 per airplane unit produced during war. Standards keep planes flying—cartoon, right.



Government and industry cooperate to make American Standards available throughout the world. ASA exhibit, above, shows 50 cities in other countries where complete sets are available for reference. At right, above, new American Standard decimal-inch scales are exhibited by manufacturers. The Corps of Engineers, below, showed how industrial engine standardization will reduce military problem of supply and maintenance. Quartermaster Corps exhibited interchangeable panels and fasteners for expandable warehouses. Signal Corps showed standardization of indicating instruments, capacitors, resistors. Standards and technical publications totaled 15,804 pages in one year, American Society for Testing Materials reports, below.



Research for safety and building codes, calibration of gages, weights and measures for industry and of base line tapes for Coast and Geodetic Survey (right above) are only a few services of NBS to government and industry. Bureau of Ships' exhibit, in part below, covered standards from hand tools to model boat storage unit. Electronic circuit package, developed by NBS research sponsored by Navy Bureau of Aeronautics, was shown applied by Bureau of Ships.

Develop standards for government use and use government standards, panel urged industry. Left to right, C. L. Magnuson; Lester W. Benoit; Clifton E. Mack; Honorable Edmund F. Mansure; Norman L. Mochel; John Ward; Willis S. MacLeod.

...in Relationship of Industry and Government Standards

Clifton E. Mack, Commissioner, Federal Supply Service, General Services Administration, presided. The session was sponsored by the General Services Administration, the National Institute of Governmental Purchasing, and the Conference of Executives of Organization Members of the ASA.

Of more than 3,000 Federal Specifications and Standards accepted within the federal government many are suitable as they now stand for widespread adoption in industry, declared Edmund F. Mansure, Administrator of General Services. Adoption by industry generally of a specification or standard prepared for Federal use has the same beneficial effects on the public treasury as has government's adoption of specifications proved by industrial use, he stated.

Standardization enables the smallest member of the industry to bid on a competitive basis, thus furthering GSA's policy of equalizing business opportunities, Mr Mansure declared.

Uniform catalog numbers and item descriptions are needed, and Congress has been asked for funds with which to reestablish cataloging of the items GSA buys for the civil and military agencies, Mr Mansure reported.

When a liaison engineer was employed to work full time for the Board of Standardization about a year ago, many of the most difficult problems of standardization for the City of Chicago were taken care of, said John F. Ward, Director of Purchases for the City of Chicago. These difficulties were due to the fact that the work of a Standards Committee crosses many organizational lines and calls for the "indoctrination of the whole city family with the philosophy of standardization," he explained. The liaison engineer devotes his full time to supervising the 35 Advisory Committees which prepare tentative standard specifications for the Board's approval. He also works with buyers and contract engineers and with industry to determine what standardization problems exist. Mr Ward concludes that the head of the Standards Department must be carefully selected and empowered to report to top management. He should be invested with power to make final decisions.

Lester W. Benoit, Executive Secretary of the Manufacturers Standardization Society of the Valve and Fittings Industry, called for an overall industry view as the basis of a standard or specification. In time of emergency, he said, our forces must have an entire industry behind them and not one or two producers. Use of common national standards will go a long way toward making this possible. He called attention to a standard inspection manual recently written by the Corps of Army Engineers in cooperation with the MSS technical group as an outstanding example of understanding between industry and government. He also called attention to the current edition of the U. S. Coast Guard Marine Engineering Regulations in which materials are covered by ASTM specifications, dimensions by American Standards, and in which the ASME Unfired Pressure Vessels and Boiler Construction Codes are recognized. Previously, it was necessary to use an industry interpretation booklet to translate the regulations,

which were written in complete detail, he said.

Mr Benoit expressed the hope that industry would continue the trend toward producing to government specifications for products offered the commercial user.

Technical societies and associations were challenged to provide more nationally recognized standards that can be used in Government standards. The challenge was offered by Willis MacLeod, Director of the Standardization Division, Federal Supply Service, General Services Administration. Some 78 technical committees have developed over 3100 Federal Specifications, he said, but this is only a little more than half the job of providing the supply machine with standard purchase specifications. Speaking to the American Standards Association, its correlating committees and representatives of technical societies and trade associations, he said, "I know of scarcely an area in the end products involved in Federal Supply which is adequately covered today by end-product standards nationally recognized in character."

The State of Connecticut has found it preferable to use nationally developed specifications, identified as such, rather than to tailor them to the State's specifications, declared C. L. Magnuson, Superintendent of Purchases, State of Connecticut. The State's experience with standards forms the pattern for a standards program sponsored by the National Association of State Purchasing Officers. The states are asking manufacturing companies for their opinion as to whether a specific federal specification is suitable for state use. Mr Magnuson believes the program is encouraging standardization among the states. He acknowledged the cooperation of industry in helping to make it a success.

A bolt for a bridge erected by the government could be the same as for a state highway bridge and for a steel or chemical plant structure, pointed out Norman L. Mochel, Manager of Metallurgical Engineering, Westinghouse Electric Corporation. Mr Mochel is Past President of The American Society for Testing Materials. Studies now underway in the ASTM point to the fact that properties that could be looked upon as special to a gun forging are quite important to a rotor forging as well, he said. Methods of evaluation of these properties may be quite close, he said.

Industry does not want to operate on the basis of specials and extras, Mr Mochel declared, and pointed to the statement of a leading military man who remarked that unnecessary and special requirements cannot be justified in peacetime because in wartime industry can produce best on standardized industrial requirements. Upwards of 7,000 men are working on ASTM technical committees concerned with standards for materials of all kinds, he pointed out. All associations and societies have an obligation to attempt to provide requirements in their standards that meet government needs as well as industry needs, he said.

NBS and ASA staff joined to serve Conference visitors

...in International

Dr Harold S. Osborne, past president of the International Electrotechnical Commission, presided at the session devoted to standards for international use.

Speakers represented the Agricultural Marketing Service, the Organization of American States, the international committees on motion pictures and photography, the U. S. National Committee of the International Electrotechnical Commission, and the American Standards Association, which is USA member of the International Organization for Standardization.

Orderly marketing of the largest cash crop produced on U. S. farms today is made possible by use of standards for United States Upland cotton, said E. J. Overby, Director of the Cotton Division, Agricultural Marketing Service. Farm value of the crop has ranged from 2.5 to more than 3 billion dollars in recent years, he said. He traced the history of cotton standardization from 1801 when the term "middling" was first used in the Liverpool Cotton Brokers Circular through the present Universal Standards Agreement. Associations in England, Belgium, France, Germany, Holland, Italy, Spain, Japan, and India, in addition to the USA, are members. The standards, which consist of physical samples of the cotton grades, are to be re-examined in 1956, he said. In the USA, Boards of Cotton Examiners have classified from 10 to 14 million samples annually.

Standards are essential in improving the economic condition of the Latin-American countries, declared Lewis Ortega, Division of Economic Research, Organization of American States. Six of the Latin American countries now have standards agencies, he pointed out—Argentina, Brazil, Chile, Mexico, Uruguay, and Colombia. Two associations established recently are furthering standardization. One is the Union Panamericana de Asociaciones de Ingenieros (UPADI); the other is the Pan American Standards Committee.

Germany and the United Kingdom have been principal sources of help on standards in Latin America in the past, Mr Ortega pointed out, and aside from the USA, these two nations have been the leading markets for and suppliers for Latin America. He recommended that an inter-American conference on standardization similar to the National Conference on Standards be called to draft a standards program that would be acceptable and applicable to all the Americas.

Everyone wanted to find common bases for understanding at meetings of the international photographic committees at Stockholm last summer, said M. E. Russell. Mr Russell is with the Eastman Kodak Company, and has been chairman of ASA committees responsible for developing American Standards on sensitometry of photographic materials and exposure indexes. He was a member of the Photographic Standards Board from the time of its organization until late this year when his duties as head of color print and processing at Eastman Kodak made it necessary for him to withdraw from his committee work. At the National Conference on Standards he was speaking as a member of the American delegation that took part in the Stockholm meetings of ISO Technical Committees 36 on Motion Pictures and 42 on Photography. He and the other members of the

Lewis Ortega, speaking at the session on international standards, told Conference how standards can help improve economic conditions in Latin-American countries and what steps are being taken. Panel members presented other phases of international cooperation on standards. From left — R. C. Sogge; M. E. Russell; E. J. Overby; Mr. Ortega; Dr H. S. Osborne; Vice Admiral G. F. Hussey, Jr, USN (Ret).

Standardization

delegation represented the American Standards Association which holds the secretariat for these two committees. The standards organizations of ten countries were represented at these meetings.

Because all present wanted to find a basis for international understanding, solutions were found quickly to many problems confronting the various national groups, Mr Russell reported. Of the 16 subjects considered by TC 42, the group agreed on basic principles for 12. Drafts will be prepared for international circulation. When approved by ISO, these will not be binding on any country's standards organization but will be recommendations for adoption in national standards.

It is highly important to choose a man with wide experience in his field as well as in standards work as an international representative, Mr Russell declared.

Citing participation in IEC committees by electronics manufacturers, electric light and power companies, colleges, and government representatives, and endorsement of IEC work by the National Electrical Manufacturers Association, R. C. Sogge reported that interest in international standards work is increasing in the United States. Mr. Sogge is president of the United States National Committee of the International Electrotechnical Commission and was head of the American delegation to the 1955 IEC meetings in London. He is manager of Engineering Standards in the Engineering Services Division, General Electric Company, New York.

Noting the quality of the work accomplished, Mr Sogge recommended that the USA be represented by a minimum of two well qualified representatives at each meeting of an international technical committee. The national committees of other member countries are sending top-grade delegates who are technically qualified and who are alert to their country's viewpoint, he explained.

A comparatively small amount of money spent on translating American Standards into Spanish and Portuguese for circulation in Latin America would buy the USA an enormous amount of goodwill, declared Vice Admiral G. F. Hussey, Jr, USN (Ret). Admiral Hussey is Managing Director of the American Standards Association and USA member of the Council of the International Organization for Standardization. He reported on the work of the ISO, which now has 37 members. Many of the ISO technical committees have approved international recommendations on a wide variety of subjects, such as screw threads; pipes and fittings; drawings; steel; copper and copper alloys; welding; pallets; gas cylinders; petroleum products; and plastics, he said.

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AMERICAN STANDARDS

Status as of November 30, 1955

Legend

Standards Council—Approval of Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks.

Standard Boards—Approve standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Acoustics

In Standards Board—

Ultrasonic Therapeutic Equipment, Z24.18
Sponsor: Acoustical Society of America

Building

Standards Approved—

Support, Anchorage, and Protection of Exterior Marble Veneer 2 Inches and Less in Thickness, Specifications for, A94.2-1955

Exterior Marble Used in Curtain Walls, Specifications for, A94.3-1955
Sponsor: Marble Institute of America

In Standards Board—

Gypsum Lath, Specifications for, (Revision of ASTM C37-50; ASA A67.1-1951)

Gypsum Sheathing Board, Specifications for, (Revision of ASTM C79-52; ASA A68.1-1953)

Testing Gypsum and Gypsum Products, Methods of, (Revision of ASTM C26-52; ASA A70.1-1953)

Gypsum Partition Tile or Block, Specifications for, (Revision of ASTM C52-41; ASA A105.1-1954)
Sponsor: American Society for Testing Materials

Open Joist Steel Construction, Specifications for, (Revision of A87.1-1947)
Sponsor: Steel Joist Institute

Determining Areas in Office Buildings (Other than Government Buildings), Z65.1
Sponsors: U. S. Dept. of Health, Education, and Welfare; National Association of Building Owners and Managers

Standard Submitted—

Standard Types of Building Construction, NFPA 220; ASA A110.1
Sponsor: National Fire Protection Association

Consumer Goods

New Project Requested—

Performance Requirements for Cleaning Supplies
Requested by: American Hotel Association

Electrical

American Standards Published—

Soft or Annealed Copper Wire, Specifications for, ASTM B3-54T; ASA C7.1-1955 (Revision of ASTM B3-53T; ASA C7.1-1953) $.30

General requirements for tensile strength, joints, resistivity, dimensions, permissible variations and finish. Inspection, methods of test, conformance, criteria, density, packing and shipping.
Sponsor: American Society for Testing Materials

Wet-Process Porcelain Insulators (Suspension Type) C29.2-1955 $1.00
Sponsor: Electrical Standards Board

Electric Railway Control Apparatus, C48.1-1955 (Revision of C48-1931) $.60
Sponsor: American Institute of Electrical Engineers

Testing Molded Materials Used for Electrical Insulation, Methods of, ASA C59.1-1955 (Revision of ASTM D48-52T; ASA C59.1-1954) $.30

Molding and conditioning of test specimens, test conditions, arc resistance, dielectric strength, insulation and volume resistance, power factor, dielectric constant, and loss factor. Also compressive, flexural, impact and tensile strength; other physical properties such as expansion, water absorption chemical resistance, mobility and shrinkage.

Testing Electrical Insulating Oils, Method of, ASTM D117-54T; ASA C59.2-1955 (Revision of ASTM D117-43; ASA C59.2-1944) $.30

Definition, significance and procedure for color, dielectric strength, flash point, gas content, interfacial tension, inorganic chlorides and sulphates, neutralization value, pour point, power factor, resistivity, sampling, saponification number, sludge, specific gravity, steam emulsion, free sulfur, combined corrosive sulfur, viscosity, and water in insulating oils.
Sponsor: American Society for Testing Materials

Dimensional and Electrical Characteristics of 20-Watt T-12 Preheat Start Fluorescent Lamp, C78.406-1955 (Revision of C78.406-1951) $.25

Dimensional and Electrical Characteristics of 100-Watt T-17 Preheat Start Fluorescent Lamp, C78.410-1955 (Revision of C78.410-1951) $.25

Electrical Characteristics of 90-Watt T-17 Preheat Start Fluorescent Lamp, C78.411-1955 $.25
Sponsor: Electrical Standards Board

American Standards Approved—

Synchronous Generators, Synchronous Motors, and Synchronous Machines in General, C50.1-1955 (Partial revision of C50-1943)

Alternating-Current Induction Motors, Induction Machines in General, and Universal Motors, C50.2-1955 (Partial Revision of C50-1943)

Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General, C50.4-1955 (Partial Revision of C50-1943)

Rotating Exciters for Synchronous Machines, C50.5-1955 (Partial revision of C50-1943)

Motor-Generator Sets, C50.6-1955 (Partial revision of C50-1943)

Dimensions for Motors and Generators, C50.8-1955 (Partial revision of C50-1943)
Sponsor: Electrical Standards Board

Testing for Impact Resistance of Plastics and Electrical Insulating Materials, Methods of, ASTM D256-54T; C59.11-1955 (Revision of ASTM D256-47T; ASA C59.11-1948, R1954)

Cantilever and simple beam impact test procedure, apparatus, test specimen and report.

Conditioning Plastics and Electrical Insulating Materials for Testing, Methods of, ASTM D618-54; ASA C59.28-1955

Test for Insulation Resistance of Electrical Insulating Materials, Methods of, ASTM D257-54T; ASA C59.3-1955 (Revision of ASTM D257-52T; ASA C59.3-1954)

Procedures for the determination of insulation resistance, volume resistance, surface resistance, volume resistivity, and surface resistivity of specimens of electrical insulating materials. Operating instructions, typical methods, definitions, and factors affecting insulation resistance.
Sponsor: American Society for Testing Materials

Guide for Electrical Measurements of Fluorescent Lamps, C78.375-1955
Sponsor: Electrical Standards Board

In Board of Review—

Single and Heavy Vinyl Acetal Coated Round Copper Magnet Wire, NEMA MW15-1955; ASA C9.5

Heavy Vinyl Acetal Coated Rectangular and Square Copper Magnet Wire, NEMA MW18-1955; ASA C9.6

Double Paper Single Cotton Covered Rectangular and Square Copper Magnet Wire, NEMA MW32-1955; ASA C9.7
Sponsor: National Electrical Manufacturers Association

In Standards Board—

Measurement of Aspect Ratio and Geometric Distortion of Television Cameras and Picture Monitors, C16.23

Terms for Audio Techniques, Definitions of, ASA C16.24; 54 IRE 3.S1

Television Signal Measurement Terms, Definitions of, ASA C16.27; 55 IRE 23.S1
Sponsor: Institute of Radio Engineers

Insulators for Electric Power Lines, C29
Sponsor: Electrical Standards Board

Terms of Electron Tubes, Definitions of, C60.9

Terms of Magnetrons, Definitions of, C60.10

Terms of Gas-Filled Radiation Counter Tubes, Definitions of, C60.12

Definitions of Semiconductor Terms, ASA C60.14; 54 IRE 7.S2
Sponsor: Joint Electron Tube Engineering Council

Gas Burning Appliances

American Standards Approved—

Approval Requirements for Domestic Gas Ranges, Z21.1-1955 (Revision of Z21.1-1952 and Addenda Z21.1a-1953 and Z21.1b-1954)

Approval Requirements for Gas-Fired Incinerators, Z21.6-1955 (Revision of Z21.6-1949 R1952 and Addenda Z21.6a-1953 and Z21.6b-1954)

Z21.10b-1955 Addenda to American Standard Approval Requirements for Gas Water Heaters, Z21.10-1953 and Addenda Z21.10a-1954

Z21.11a-1955 Addenda to American Standard Approval Requirements for Gas-Fired Room Heaters, Z21.11-1954

Z21.13.1b-1955 Addenda to American Standard Approval Requirements for Central Heating Gas Appliances, Volume I, Steam and Hot Water Boilers, Z21.13.1-1951 and Addenda Z21.13.1a-1954

Approval Requirements for Central Heating Gas Appliances, Volume II, Gravity and Forced Air Central Furnaces, Z21.13.2-1955 (Revision of Z21.13.2-1951 and Addenda Z21.13.2a-1952 and Z21.13.2b-1954)

Z21.13.3b-1955 Addenda to American Standard Approval Requirements for Central Heating Gas Appliances, Volume III, Gravity and Fan Type Floor Furnaces, Z21.13.3-1951 and Addenda Z21.13.3a-1954

Approval Requirements for Central Heating Gas Appliances, Volume IV, Gravity and Fan Type Vented Recessed Heaters, Z21.13.4-1955 (Revision of Z21.13.4-1953 and Addenda Z21.13.4a-1954)

Z21.16b-1955 Addenda to American Standard Approval Requirements for Gas Unit Heaters, Z21.16-1951 and Addenda Z21.16a-1953

Listing Requirements for Domestic Gas Appliance Pressure Regulators, Z21.18-1955 (Revision of Z21.18-1934)

Approval Requirements for Hotel and Restaurant Deep Fat Fryers, Z21.27-1955 (Revision of Z21.27-1940 and Addenda Z21.27a-1946)

Listing Requirements for Metal Connectors for Gas Appliances, Z21.24-1955 [consolidation and revision of Listing Requirements for Semi-Rigid Gas Appliance Tubing and Fittings, Z21,24-1941 (R1953) and Listing Requirements for Gas Appliance Connectors of Flexible Metal Tubing and Fittings, Z21.32-1942 (R1953)]

Approval Requirements for Gas-Fired Duct Furnaces, Z21.34-1955 [Revision of Z21.34-1942 (R1950) and Addenda Z21.34a-1954]

Z21.38a-1955 Addenda to American Standard Requirements for Installation of Gas Conversion Burners in Domestic Gas Ranges, Z21.38-1953

Z21.39a-1955 Addenda to American Standard Listing Requirements for Gas Conversion Burners for Domestic Ranges, Z21.39-1953
Sponsor: American Gas Association

Graphic

American Standard Approved—

Letter Symbols for Chemical Engineering, Y10.12-1955 (Revision of Z10.12-1946)
Sponsor: American Society of Mechanical Engineers

In Board of Review—

Graphical Symbols for Plumbing, Y32.4-1955 (Revision of Z32.2.2-1949)
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Highway Traffic

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Railroad Highway Grade Crossing Protection (Revision of D8.1-1951) D8
Sponsor: Association of American Railroads

Materials and Testing

American Standards Published—

Standard Methods of Testing Clay Pipe, ASTM C301-54; ASA A106.5-1955

Standard Hardness Conversion Tables for Steel, ASTM E48-47; ASA Z76.2-1955
Sponsor: American Society for Testing Materials

American Standards Approved—

Nickel Seamless Pipe and Tubing, Specifications for, ASTM B161-49T; ASA H34.1-1955

Nickel-Copper Alloy Seamless Pipe and Tubing, Specifications for, ASTM B165-49T; ASA H34.2-1955

Nickel-Chromium-Iron Alloy Seamless Pipe and Tubing, ASTM B167-49T; ASA H34.3-1955
Sponsor: American Society for Testing Materials

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Butt-Welding Ends, B16.25-1955 $1.00
Sponsors: American Society of Mechanical Engineers; Heating, Piping and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry

Small Solid Rivets, B18.1-1955 (Revision of B18.1-1953) $1.00
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Requirements for Grease Cans, B64.4-1954 $.35

Scales for Use with Decimal-Inch Dimensioning, Z75.1-1955 $.35

American Standards Approved—

Design, Construction and Operation of Class HI (High Impact) Shock Testing Machine for Lightweight Equipment, Specification for, Z24.17-1955
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Sponsor: American Society of Mechanical Engineers

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16mm Film Perforated One Edge, Usage in Camera, PH22.15-1955 (Revision of Z22.15-1946) $.25

16mm Film Perforated One Edge, Usage in Projector, PH22.16-1955 (Revision of Z22.16-1947) $.25

35mm 3-Track Magnetic Flutter Test Film, PH22.98-1955 $.25
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Sponsor: Photographic Standards Board

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Buzz-Track Test Film for 35mm Motion Picture Sound Reproducers, PH22.68-1949 R1955
Sponsor: Society of Motion Picture and Television Engineers

Radio

American Standard Published—

Terms for Radio Aids to Navigation, Definitions of, C16.26-1955 $1.00
Sponsor: Institute of Radio Engineers

Safety

American Standard Published—

Safety Code for Elevators, Dumbwaiters, and Escalators, A17.1-1955 (Revision of A17.1-1937) $3.50

Safety requirements for the design, construction, installation, operation, inspection, testing, maintenance, alteration, and repair of passenger and freight elevators, dumbwaiters, escalators, private residence elevators, and inclined lifts and their hoistways.
Sponsors: American Institute of Architects; National Bureau of Standards; American Society of Mechanical Engineers

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THE 1500th AMERICAN STANDARD— WHAT IT IS

American Standard H34.3-1955 was the 1500th standard approved by the American Standards Association, doubling the number of American Standards in nationwide use in 1948. Title of this 1500th American Standard is Nickel-Chromium-Iron Alloy (Inconel) Seamless Pipe and Tubing. It was developed by a technical committee of the American Society for Testing Materials and is known as ASTM B165-49T. This standard was submitted by ASTM to ASA with a number of other ASTM standards under the policy whereby existing standards that qualify are approved by ASA and included in the series of nationally coordinated American Standards.

The group of standards just approved includes nickel-copper alloy (Monel) seamless pipe and tubing as well as Inconel. This is particularly appropriate, declares E. R. Patton, secretary of Subcommittee VII of ASTM Committee B-2 which developed the standard, since it coincides with the fiftieth anniversary of the discovery of Monel. Not until 1923 and later, however, were the important engineering materials Nickel, Monel, and Inconel made available in the form of seamless pipe and tubing.

Mr Patton, who is with the International Nickel Company, congratulated ASA on approval of the 1500th American Standard and commented, "This indeed represents another milestone in the splendid progress your association has made. Those familiar with the work and accomplishments of your association can well appreciate the vast amount of patience, hard work, and negotiation involved in the generation and promulgation of these standards."

Mr Patton pointed to the advantage of uniform standards to the manufacturer, the design engineer, and the user. Among these he notes that adoption of Schedules 5 and 10 pipe size wall thicknesses makes these pipe sizes available with lighter walls than were previously available and provides for thin walls that are readily available for use with recently adopted welded and silver-brazed fittings. For the user it permits the use of standard pipe dies and taps for the threading of such pipe, he said.

Chairman of ASTM Committee B-2 is Bruce W. Gonser, Battelle Memorial Institute. Chairman of Subcommittee VII which was directly responsible for development of ASTM Standard B167-49T (American Standard H34.3-1955) is O. B. J. Fraser, International Nickel Company.

In total, 497 ASTM standards have been approved by ASA as American Standards.

REQUEST SAFETY STANDARDS FOR PARKING GARAGE EQUIPMENT

A general conference held December 2, asked the American Standards Association toinitiate a project on safety recommendations for parking garage equipment. The conference was requested by the National Bureau of Standards, the American Institute of Architects, and the American Society of Mechanical Engineers, sponsors for ASA project A17 on Elevators, Dumbwaiters, and Escalators.

Colonel C. E. Davies, secretary of ASME, pointed out that the American Standard Safety Code for Elevators, Escalators, and Dumbwaiters, A17.1-1955, does not include provisions for structures now being erected for storage of automobiles at various levels above the ground. The A17 committee has decided, Colonel Davies explained, that adequate safety provisions cannot be provided unless rules are made for the structure as well as for the elevators which carry the cars up and down.

The conference recommended that safety provisions be developed by a sectional committee, and that ASME be invited to serve as sponsor. It also recommended that the

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Abbreviations of Organization Names

AATCC	American Association of Textile Chemists and Colorists
ARCI	American Railway Car Insitute
ASA	American Standards Association
ASRE	American Society of Refrigerating Engineers
ASSE	American Society of Safety Engineers
ASTM	American Society for Testing Materials
GSA	General Services Administration
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
NAHB	National Association of Home Builders
NAPA	National Association of Purchasing Agents
NBS	National Bureau of Standards
NEMA	National Electrical Manufacturers Association
NSC	National Safety Council
RISAC	Refrigeration Industry Safety Advisory Committee
SAE	Society of Automotive Engineers
SAM	Society for the Advancement of Management
SES	Standards Engineers Society
SLA	Special Libraries Association

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CONFERENCE ON NUCLEAR ENERGY

All groups concerned with fissionable material were invited to a conference called by the American Standards Association at the Hotel Statler, Washington, D. C., December 8. Primary purpose was to focus attention on use of standards in planning and development of industrial atomic energy operations. The conference was asked to make recommendations for national standards projects to make the most profitable use of nuclear energy and to consider expanding present safety standards projects. Forty-eight different codes, one for each state, could mean hazards to workers and waste billions of dollars and vital materials, it has been pointed out.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

THE MAGAZINE OF STANDARDS, published monthly at New York, N. Y. for Oct. 1, 1955.

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Ruth E. Mason,
Editor

Sworn to and subscribed before me this 28th day of September, 1955.

Lydia I. Gustafsson
Notary Public, State of New York
Qualified in Westchester County
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(My commission expires March 30, 1957.)

Paperwork Standardization

STANDARDS OUTLOOK

by LEO B. MOORE

One area generally available for improvement in business is that known as paperwork. This includes not only the cost of the paper itself, but the clerical, office, and even administrative, labor involved with it. Here is an opportunity that has been overlooked by most standards engineers. This is not surprising because it has been neglected by most managers, even those bent on cutting costs.

Paper is used by administrators as a means of record and communication. As such it is an aid to administration, because it provides information at the point of need factually and clearly. Paperwork that helps managers to manage better is not subject to argument, but it is subject to abuse.

One most common abuse is the paper that is prepared for no reason at all. Copies of records and reports are made in excessive numbers because someone "may need an extra." The distribution list of memoranda grows because we want to "keep everyone informed." But the worst abuse of all is the paperwork that is maintained month after month, even though its original purpose has long since disappeared. To compound the felony, all this unnecessary paper finally is carefully documented, filed, and stored.

The basic cause for these conditions lies in the nature of paperwork — it has a quality of being insidious. It creeps into an organization. "Let's keep a record of this." It seems so natural. "Make out a report on this." It is so easy. "I'll write a memo on this." And each little piece adds to the growing mountain of paper while it also adds to the cost of doing business.

Paper by itself is costly, but paper specially printed, in a variety of colors, glued together in units, assembled with carbons, made into snap-out combinations, gets increasingly expensive. Worse than this is the paper that is created by the department clerk, with the help of duplicating equipment. Every department head has little records of information kept for him and they invariably develop into a form of some kind. In one company there were 138 separate bits of paper all concerned with the single subject of production and its control. The standards engineer uncovered this situation and when the investigation was over, three standard forms were found more satisfactory to everyone concerned.

Not only may standards engineers eliminate unnecessary paper and reduce the variety that is needed, but they also can standardize the essential paper in order to make it more effective. Forms that are going to be used in a typewriter can be set up to fit the typist's patterns of work. Records that are going to be reviewed can be arranged for easier analysis. The possibilities seem endless in the area of improvement of design through standardization.

Every standards engineer has an opportunity to reduce operating costs by acting as a brake on the rapid and expensive growth of paperwork in his company. He can help management to keep as watchful an eye on paperwork as on other production expenses. •

Mr Moore is Assistant Professor of Industrial Management at Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.

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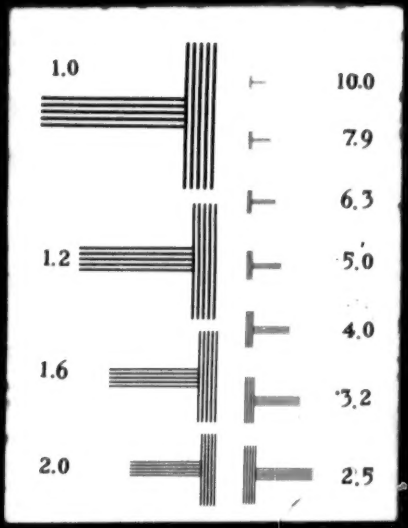

100 MILLIMETERS

INSTRUCTIONS Resolution is expressed in terms of the lines per millimeter recorded by a particular film under specified conditions. Numerals in chart indicate the number of lines per millimeter in adjacent "T-shaped" groupings.

In microfilming, it is necessary to determine the reduction ratio and multiply the number of lines in the chart by this value to find the number of lines recorded by the film. As an aid in determining the reduction ratio, the line above is 100 millimeters in length. Measuring this line in the film image and dividing the length into 100 gives the reduction ratio. Example: the line is 20 mm. long in the film image, and $100/20 = 5$.

Examine "T-shaped" line groupings in the film with microscope, and note the number adjacent to finest lines recorded sharply and distinctly. Multiply this number by the reduction factor to obtain resolving power in lines per millimeter. Example: 7.9 group of lines is clearly recorded while lines in the 10.0 group are not distinctly separated. Reduction ratio is 5, and $7.9 \times 5 = 39.5$ lines per millimeter recorded satisfactorily. $10.0 \times 5 = 50$ lines per millimeter which are not recorded satisfactorily. Under the particular conditions, maximum resolution is between 39.5 and 50 lines per millimeter.

Resolution, as measured on the film, is a test of the entire photographic system, including lens, exposure, processing, and other factors. These rarely utilize maximum resolution of the film. Vibrations during exposure, lack of critical focus, and exposures yielding very dense negatives are to be avoided.